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(54) APPARATUS AND METHOD FOR EXTRACTING AN INFUSION

(71) Applicant: **ESPRO INC.**, Vancouver (CA)

(72) Inventors: Christopher R McLean, Vancouver

(CA); Bruce A. Constantine, North

Attleboro, MA (US)

(73) Assignee: ESPRO, INC., Vancouver (CA)

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See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

1,025,206 A 5/1912 Rounds 1,581,877 A 4/1926 Schultz (Continued)

FOREIGN PATENT DOCUMENTS

CA 1019251 A1 10/1977 CA 2418741 A1 8/2004 (Continued)

OTHER PUBLICATIONS

International Preliminary Report on Patentability, issued Nov. 17, 2010, and International Search Report, issued Aug. 6, 2009, for related application PCT/CA2009/000604, and 4 pages.

(Continued)

Primary Examiner — Thien S Tran
(74) Attorney, Agent, or Firm — Day Pitney LLP

(57) ABSTRACT

An infusion extractor is provided including a plunger to be inserted into an infusing container containing the infusion mixture that has vertical inner walls oriented parallel to a vertical axis of the container. The plunger includes a first surface with a seal situated at an edge of the surface. The seal is adapted for sealing against the inner walls of the infusing container as the plunger moves within the container, to define a first chamber containing the mixture of infusible material and extract. The plunger also includes a second surface extending from the first surface and defining a second chamber; the second surface includes extract flow openings which permit flow of extract from the first chamber into the second chamber. At least a portion of the extract flow openings are situated at a depth either above or below the first surface along the vertical axis.

23 Claims, 11 Drawing Sheets

